THE GENUS *LEPTOGASTER* (DIPTERA:ASILIDAE) FROM THE WEST INDIES[1]

A. G. Scarbrough[2]

ABSTRACT: Three new West Indian species of *Leptogaster: hyacinthina, lineatus* and *bahamienses* of the *obscuripes* species group are reported and a key to all known species is presented. The identification of *L. obscuripes* and *L. obscuripennis* is discussed and *L. roederi* is redescribed. Lectotypes are designated for *L. obscuripennis* and *L. roederi.*

The genus *Leptogaster* Meigen is nearly world wide in distribution and contains at least 120 valid species (Hull 1962). These long, slender, flies are particularly abundant in tropical regions, especially Asia and southward in the South Pacific. Adults inhabit grasslands and undergrowth of forests (Melin 1923, Martin 1957a, Hull 1962, Farr 1963, Scarbrough & Sipes 1973). They are readily recognized by a one-segmented, apically clavate palpus, face strongly divergent, absence of alula and pulvilli, long, thin hind legs, and only open cells along the wing margin (Martin 1957a, Hull 1962). Unfortunately, little taxonomic or life history studies have been done on species of *Leptogaster*. Consequently, many species remain undiscovered and those in collections remain undescribed.

While attempting to identify specimens sent to me by entomologists who are involved in other studies in the West Indies, I found three undescribed species of *Leptogaster* Meigen. Presently, *L. obscuripes* Loew (Loew 1862) from Cuba, *L. lerneri* Curran (Curran 1953) from Bimini Island in the Bahamas, and *L. jamaciensis* Farr, *L. bengryi* Farr and *L. martini* Farr (1963) from Jamaica, and *L. roederi* Williston (Williston 1896) from St. Vincent Island are known. This paper describes three new species, increasing the number of species to nine from that region, *L. roederi* is redescribed, the identification of *L. obscuripes* and *L. obscuripennis* Johnson is discussed, and a key to the known West Indian species of *Leptogaster* is presented. *Leptogaster obscuripennis* is included in the key because of its possible occurrence in the West Indies.

Key to the species of *Leptogaster* Meigen

Adults

1. Dorsum of mesonotum polished, tomentum limited to narrow lateral margin and posterior fourth or less 2
– Dorsum of mesonotum partially or wholly covered with tomentum, at least narrow lines of tomentum present dorsally 5

[1] Received October 5, 1995. Accepted January 9, 1996.

[2] Department of Biological Sciences, Towson State University, Baltimore, Md. USA, 21204.

2. Wing brown, surface entirely with abundant microtrichia; anterior four femora yellow; southeastern United States ..... *obscuripennis* Johnson
– Wing hyaline, surface with largely sparse microtrichia, most abundant at narrow apex of wing; anterior four femora largely brownish to brown; West Indies 3
3. Thorax largely or entirely black 4
– Thorax largely brownish yellow with yellow apical corners; CuA_1+M_3 vein unusually long, 4.7 times as long as r-m crossvein; sternite 8 as in Fig. 23; St. Vincent Island ..... *roederi* Williston
4. Mesonotum entirely black with purplish reflections; genitalia as in Figs. 9-16; Dominican Republic..... *hyacinthina,* new species
– Mesonotum mostly black, wide apical corners reddish, purplish reflections absent; Cuba, Texas ..... *obscuripes* Loew
5. Mesonotum dorsally entirely tomentose; epandrium strongly recurved apically, U-shape, with apex directed anteriorly; Bimini Islands, Bahamas ..... *lerneri* Curran
– Mesonotum dorsally at least partially subshiny; epandrium apically not recurved, apex directed posteriorly 6
6. Thorax blackish, mesonotum dorsally with one or more wide subshiny stripes outlined by thin, brown tomentum 7
– Thorax largely reddish, mesonotum dorsally largely shiny with only two thin lines of brown-yellow tomentum 8
7. Postpronotum and postalar callus brownish; Jamaica ..... *martini* Farr
– Postpronotum and postalar callus yellow; genitalia as in Figs. 17-22; Dominican Republic ..... *lineatus,* new species
8. Discal cell short with r-m crossvein beyond middle; vein M_{1+2} above discal cell much shorter beyond r-m crossvein than before; genitalia as in Figs. 1-8; Bahamas, Cuba ..... *bahamiensis,* new species
– Discal cell long with r-m crossvein usually before middle; vein M_{1+2} above discal cell beyond r-m crossvein longer, slightly shorter than or slightly longer than before 9
9. Vein M_{1+2} distinctly longer beyond r-m crossvein than before; epandrium apically wider than subapex, corners divergent, distinctly angular; Jamaica ..... *bengryi* Farr
– Vein M_{1+2} only slightly shorter beyond r-m crossvein than before; epandrium apically as wide as subapex, ventroapical corner obtusely angular to broadly rounded; Jamaica ..... *jamaciensis* Farr

Taxa

Leptogaster bahamiensis, NEW SPECIES

Figs. 1-8

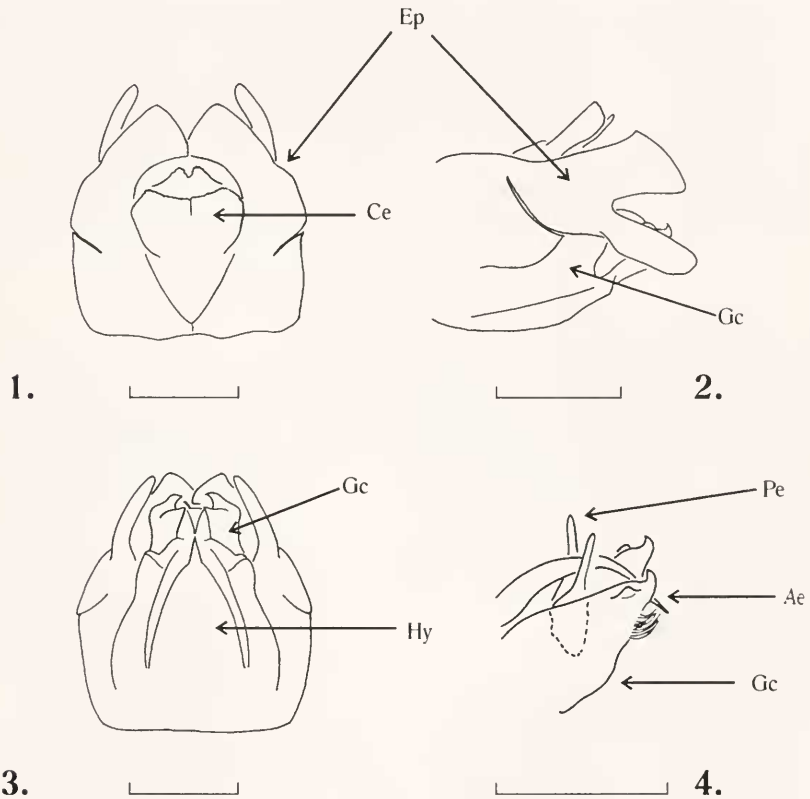
Male. Reddish brown to dark brown. Length, body 10.7-13.3 mm; wing 5.7-7.7 mm. Face white to pale yellow tomentose, mystax with eight pale yellow setae. Proboscis dark brown to blackish with base ventrally yellowish, palpus brownish to yellowish brown, each with sparse yellow vestiture. Front yellowish tomentose with sparse, fine vestiture. Scape and pedicel bright yellow with yellow setae; flagellum and stylus dark brown, flagellum more than twice as long as wide, and as long as combined length of scape and pedicel; stylus 2.0-2.3 times as long as flagellum, subapex flattened and flared, about twice as wide as base of stylus. Occiput yellowish white or gray tomentose with mostly whitish vestiture; two-three short, yellow, postocular present.

Mesonotum mostly reddish, a median stripe and most of posterior third black, postalar callus yellow; dorsum polished except as follows: narrow lateral and posterior with whitish to pale yellow tomentum, posterior fourth medially and narrow streak bordering median black stripe with brown-yellow to golden yellow tomentum. Mesonotum with abundant short, mostly brown setae, especially medially and anteriorly, that of lateral margins of mesonotum pale yellow; a short yellow and a much longer brown bristle present. Scutellum yellow to reddish with pale yellow tomentum and short, thin, brown to yellow marginal setae, setae much shorter than r-m

crossvein. Mesopleuron largely yellow to yellowish red, katepisternum and meron largely dark brown to blackish; tomentum pale yellowish white with pale yellow vestiture. Halter pale yellow with a sooty brown tint apically.

Wing hyaline, violaceous, with sparse microtrichia, most abundant microtrichia limited to narrow apex. Vein M_2 long, 2.5 times as long as crossvein m-m; CuA_1+M_3 three times as long as crossvein r-m. Fork of vein M_{1+2} at middle of distance between crossveins r-m and mm.

Coxa yellow with pale yellow vestiture. Trochanter largely yellow, with narrow brown streak posteriorly. Femora mostly dark yellow-brown to brown with apices darkest, bases narrowly yellow; fore and mid femora posteriorly slightly lighter in color. Mid and hind femora with a preapical, yellowish brown to yellowish band; hind femur largely swollen on apical one-third. Fore and mid tibiae anteriorly yellowish brown, much darker in lateral view, remaining surfaces much lighter in color, yellowish; all bristles yellow. Hind tibia slender, gradually expanding apically with apex about twice as wide as base; brown with basal one-fifth yellow

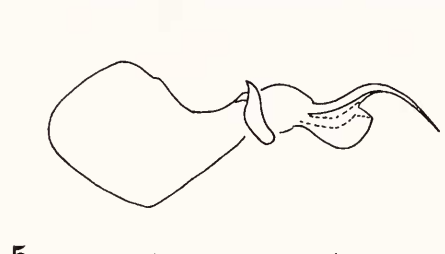


1-4. *Leptogaster bahamiensis,* New Species. 1-3. Male terminalia, dorsal, lateral, and ventral views; Ep = epandrium, Ce = cercus, Hy = hypandrium, Gc = gonocoxite. 4. Penal valves; Pe = penal valve, Ae = aedeagus. Scale, 0.4 mm for Figs. 1-3, 0.3 mm for Fig. 4.

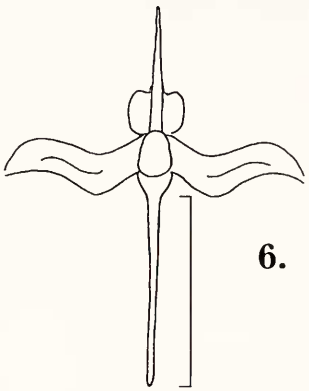
anteriorly and posteriorly, bristles yellow and brown. Tarsi with basal three tarsomeres entirely yellow, the apical two tarsomeres slightly brownish to brownish yellow; narrow apices of the latter contrastingly brown; apex of apical tarsomere dark brown; all bristles brown except for one yellow bristle on basal segment.

Abdomen largely reddish brown to black in ground color, most segments with the apices, bases and lateral margins narrowly yellowish; tergites 2-4 dorsally polished; segment 1 and basal third of 2 grayish tomentose, all sternites and lateral margins of tergites 2-8 with yellow-brown to yellowish tomentum, tergites dorsally with brown tomentum; tergites dorsally largely or entirely with brown setae, remaining setae pale yellow.

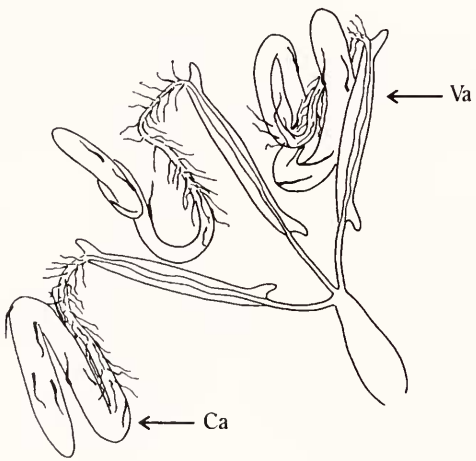
Genitalia (Figs. 1-6) largely yellowish, dorsal branch of epandrium brown with tint of yellow basally. Epandrium with wide dorsal branch, apex subtruncate with corners weakly project-



5.



6.



7.

8.

5-8. *Leptoqaster bahamiensis,* New Species. 5-6. Aedeagus, lateral and dorsal views. 7. Spermathecae; Ca = capsule, Va = valve. 8. Female, sternite 8. Scale, 0.5 mm for Figs. 5-6, 0.5 mm for Fig. 7, 0.4 mm for Fig. 8.

ing; ventral branch about as long as dorsal branch, yellow with apex rounded. Hypandrium triangular to subrectangular. Primary penal valves (in sense of Martin 1957a; = aedeagal guides of McAlpine 1981) urnshape with a long slender neck, secondary valves much wider, longer and divided into two branches. Aedeagus as in Figs. 5-6.

Female. Same as male except as follows: Body length 14.7 15.7 mm, wing 8.3-8.7 mm. Each side of tergite 8 with a large subshiny spot. Spermatheca and sternite 8 as in Figs. 7-8.

Holotype ♂ and allotype ♀, **BAHAMA ISLANDS:** Grande Bahama Island, Freeport, malaise trap in Caribbean pine and palmetto scrub, 20-27 June, 1987, W. E. Steiner, M. J. & J. Molineaux (USNM). Paratypes: 4 ♂♂ & 1 ♀, same data and location as holotype ; 1 ♂, San Salvador Island, Bahama Islands, rd. n. Bahama Field Sta., malaise trap in red mangrove, 26.VI.91, A. Scarbrough (USNM). **CUBA:** 1 ♂, vic Havana, T. Barber; 1 ♀, Trinidad Mts., Bueno Aries, 17-23.VI.1939, C.T. Pearson (MCZ).

Etymology. The name *bahamiensis*, taken in part from the type locality, Grande Bahama Island.

Remarks. *Leptogaster bahamiensis* belongs to the *obscuripes* species group (Martin 1957a), and the male can be recognized by the combined characters of the genitalia. It will run to *L. jamaciensis* in Farrs' key (1963) but can be separated by the distinctly pointed dorsoapical corners of the epandrium. Females of *L. bahamiensis* are essentially identical to *L. jamaciensis*. The valves of the spermatheca lack the darker sclerotization in *L. jamaciensis*. Additionally, the narrow apices of most abdominal segments and the basal corners of two-three tergites are yellow in *L. bahamiensis* whereas they are more uniform brownish red in *L. jamaciensis*.

Leptogaster hyacinthina, NEW SPECIES

Figs. 9-16

Male. Black. Length, body 15.1 mm, wing 9.3 mm. Face dull yellow tomentose; front yellowish gray tomentose, only slightly divergent, width at ocellus slightly less than twice as wide as face at narrowest point; mystax with a row of 9-10 yellow setae. Proboscis and palpus brown, vestiture sparse, yellow. Flagellum dark brown, at least four times as long as wide, and only slightly longer than combined length of scape and pedicel; stylus dark brown, at least 2.5 times as long as flagellum. Scape and pedicel largely brown to brownish with brown setae; pedicel with apex yellowish. Occiput with dull yellow tomentum and thin, yellow vestiture.

Thorax largely black, mesonotum dorsally polished black with sparse black to dark brown setae, postpronotum and postalar callus yellow, narrow lateral margin and posterior fourth of mesonotum with dense yellow tomentum; two stout, yellow bristles present laterally. Scutellum and mesopleuron with yellowish dense tomentum and sparse yellow vestiture; scutellum with five-six thin, marginal setae, about as long as crossvein r-m; metapleuron yellow. Halter yellow.

Wing hyaline, violaceous; microtrichia generally sparse, most dense at narrow apex of wing. Base of vein M_2 long, at least three times as long as m-m crossvein. Vein CuA_1+M_3 long, at least twice as long as crossvein r-m.

Legs slender; coxae yellow with pale tomentum and vestiture; fore femur largely yellow with narrow apex and a long ventral stripe brown, mid and hind femora brown anteriorly and ventrally with a preapical narrow yellow band; mid femur dorsally and posteriorly and dorsal one-half and ventrobasal third or more of hind femur, yellow. Fore and mid tibiae largely yellowish with a brown streak anteriorly, all setae entirely or largely yellow. Hind tibia brown, at least as a dark streak laterally, basal fourth to one-third dorsally and ventrally with a narrow yellow streak. Tarsi with only dark brown to black bristles, basal three tarsomeres of fore tarsi light yellow with narrow apices brown, apical two tarsomeres yellowish brown basally to brown apically; claws and empodium black, empodium about two-thirds as long as claws.

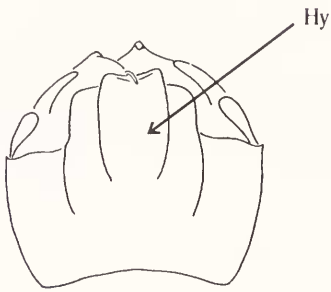
Abdomen dark brown to yellowish brown, tergites 2-7 with wide yellowish margins, sternites brownish; tomentum yellowish gray to yellowish brown; tergites 2-4 dorsally with a large polished spot. Tergite 1 laterally with a fan of six or more black setae and bristles.

Genitalia (Figs. 9-16) largely yellow with dorsal branch of epandrium brown. Epandrium divided to middle, dorsal branch much wider and slightly longer than ventral branch, apex wide, subtruncate with ventral corner slightly hooked posteriorly; ventral narrow, flat, with a rounded apex. The primary penal valves erect, urn-shaped with a long, slender neck; the secondary pair flat, leaf-like. Aedeagus (Figs. 13-14) with distiphallus long, curved downward apically and a flat, spatulate plate ventrally. Hypandrium with two parallel grooves, forming a subrectangular plate or area medially.

Female. As male except as follows. Length, body 15.0 mm; wing 9.5 mm. Style twice as long as flagellum; flagellum 1.3 times as long as scape and pedicel combined. Mesonotum laterally with one yellow and one blackish bristle. Legs darker brown than in male. Abdomen blackish, tergites laterally with only a very faint light color. Spermatheca (Fig. 15) with a narrow, elongate, intermediate gland which has a process on each end, one digitate and one mound-like, both slightly flattened; narrow ductus with abundant, weak, capitate tentacles and a wider,

9.

10.



11.

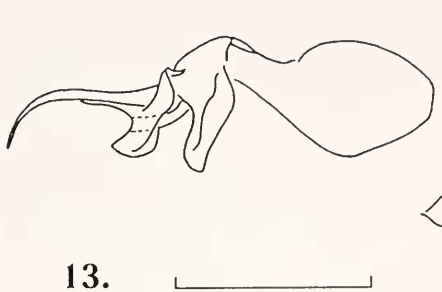
12.

9-12. *Leptogaster hyacinthina,* New Species. 9-11. Male terminalia, dorsal, lateral, and ventral views; Hy = hypandrium. 12. Penal valves. Scale, 0.4 mm for Figs. 9-11, 0.1 mm for Fig. 12.

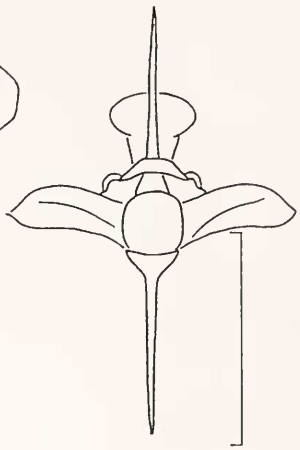
folded, tubular apical gland; median spermatheca slightly more slender and with a longer narrow ductus than the lateral spermatheca. Sternite 8 (Fig. 16) urn-shaped, broad oval base with a narrow, subtruncate apex, lateroapical margin with a row of four-five thick bristles of increasing thickness.

Holotype ♂. **DOMINICAN REPUBLIC:** Pedernales, 3.3 km, NE Los Arroyos, 18-15N, 71-45W, 1450 m, 16-18 July, 1990, sweep net samples in montane forest, Lubomir Masner (CMNH); allotype ♀, Independencia, 3 km ese El Aguacate, north slope of Serra de Baoruco, 1980m, 18-18N, 71-42W, pine woodland, 28-29 September 1991, J. Rawlins, R. Davidson, C. Young, S. Thompson (CMNH)

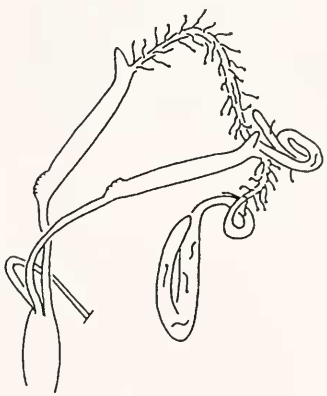
Etymology. Latin *hyacinthina*, refers to the purplish (color of the hyacinth) reflection of the shiny black dorsal surface of the mesonotum.



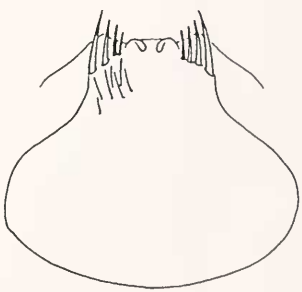
13.



14.



15.



16.

13-16. *Leptogaster hyacinthina*, New Species. 13-14. Aedeagus, lateral and dorsal views. 15. Spermathecae. 16. Female, sternite 8. Scale, 0.5 mm for Figs. 13-15, 0.4 mm for Fig. 16.

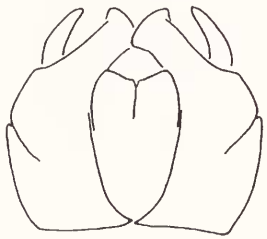
Remarks. *Leptogaster hyacinthina* is easily recognized by the purplish reflection of the shiny black mesonotum, the dark body and the shapes of the epandrium, aedeagus and penal valves.

Leptogaster lineatus, NEW SPECIES

Figs. 17-22

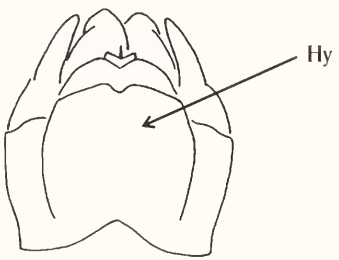
Male. Dark brown to black body. Length, body 10 mm; wing 5.8 mm. Face grayish tomentose with four pale yellow bristly setae. Front gray tomentose with a light brownish tint, slightly divergent above, at ocellus 1.3 times as wide as face at narrowest point; mystax with seven pale yellow setae. Proboscis and palpus dark brown, palpus with sparse grayish setae. Antenna with stylus and flagellum dark brown, basal two segments light brownish yellow, setae brownish; style 2.1 times as long as flagellum; flagellum 2.6 times as long as wide and as long as combined length of scape and pedicel. Occiput slightly brownish tomentose with mostly pale yellow vestiture, two-three stout, dark brown postocular setae present.

Thorax largely black, postpronotum and postalar callus yellow. Mesonotum largely with thin, brown tomentum, a wide median and a shorter stripe on each side, each black and subshiny, the median stripe divided longitudinally by a narrow streak of brown tomentum; mesonotum



17.

18.



19.

20.

17-20. *Leptogaster lineatus,* New Species. 17-19. Male terminalia, dorsal, lateral, and ventral views. 20. Penal valves. Scale, 0.4 mm for Figs. 17-19, 0.1 mm for Fig. 20.

with narrow lateral margins and posterior third, and entire scutellum and mesopleuron yellowish gray to white tomentose; sparse setae, including a short row of dorsocentral setae, and two lateral bristles, all brown. Margin of scutellum with six-seven thin, brown setae, about half as long as r-m crossvein. Mesopleuron largely reddish yellow, katepisternum blackish. Halter sooty brownish yellow.

Wing with violaceous reflections, vein M_2 three times as long as crossvein m-m, CuA_1+M_3 three times as long as crossvein r-m; microtrichia largely sparse, most abundant at extreme apex of wing.

Legs slender; coxae yellow with pale tomentum and vestiture. Fore and mid femora largely yellow, with brownish yellow anteriorly and dorsally. Hind femur gradually swollen on apical half, largely brownish with a yellowish preapical band, narrow apices brown. Fore and mid tibiae largely yellowish, brownish anteriorly, setae pale yellow; hind tibia largely brownish to brown, basal half posteriorly yellow. Tarsi with dark brown to black bristles, claws and empodia; basal four tarsomeres pale yellow to yellow with narrow apices brown; apical tarsomere largely brown with only narrow base yellow. Empodium two-thirds to three-fourths as long as claws.

Abdomen largely dark brown to blackish with narrow margins of tergites 2-6 yellowish; basal segments with mostly grayish to yellowish gray tomentum, and grading to brownish on the apical segments. Tergites 2-4 dorsally with subshiny bare spots; tergite 1 laterally with two-three stout, brown bristles.

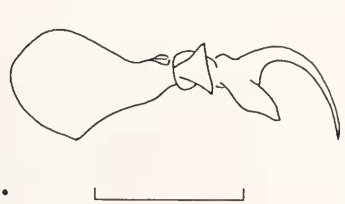
Genitalia (Figs. 17-22) largely brown, lower branch of epandrium yellow. Epandrium divided to about half distance to base, dorsal branch wide with apical margin slightly rounded, oblique pointed subapically in lateral view; lower branch flat with rounded apex, about as long as dorsal branch. Primary penal valves small, leaf-like; secondary valves much large, flat, with ventral margins fused forming a groove in which the distiphallus rests. Aedeagus as in Figs. 21-22. Hypandrium subrectangular.

Female unknown.

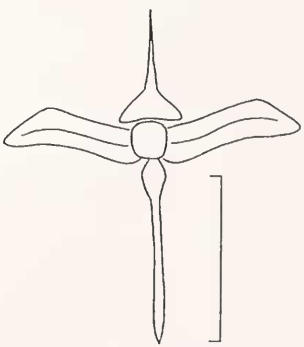
Holotype ♂. **DOMINICAN REPUBLIC:** Prov. Pedernales, cat 35 km NNW Cabo Rojo 1430 m, El Aceitillar, 20 Aug. 1988, pine forest, M. Ivie, Phillips & Johnson (USNM).

Etymology. Latin, *lineatus*, adj. meaning striped, referring to the longitudinal, subshiny, black stripes on the mesonotum.

Remarks. *Leptogaster lineatus* differs from other West Indian species by the blackish body, and the combined characters of the mesonotum and genitalia, especially the fused leaflike penal valves. It differs from *L. hyacinthina*, also from the Dominican Republic, in the largely tomentose mesonotum.



21.



22.

21-22. *Leptogaster lineatus*, New Species. Aedeagus, lateral and dorsal views. Scales, 0.5 mm for Figs. 21-22.

Leptogaster lineatus is most similar to *L. martini*, and will run to that species in Farrs' key (1963). It differs primarily in that the median subshiny stripe is partially subdivided by a thin line of brown tomentum, the yellow postpronotum and postalar callus, and the combined characters of the terminalia.

Leptogaster obscuripennis Johnson

Leptogaster obscuripennis Johnson, 1895: 304,323. Cotypes, ♂ & ♀, type locality St. Augustine, Florida, MCZ; Back, 1909: 167-168 (description); Martin 1957a, 3: 367; Hull 1962: 299 (catalog).

Remarks. *Leptogaster obscuripennis* was described from two specimens (cotypes 7573). The male cotype lacks the right antenna, hind right leg, the left fore tarsi and fore tibia, the mid leg, the left wing is partially absent, and the genitalia is partially covered with debris. The female cotype lacks the fore tarsus and the apical four segments of the left hind tarsus. The male and female are designated Lectotype and paralectotype, respectively.

Leptogaster obscuripennis is only known from the southeastern United States but may also exist on some of the nearby islands (Martin 1957b, Farr 1963). It belongs to the *obscuripes* species group (Martin 1957a), and is readily distinguished from others in the group by its lighter color, predominately yellow to yellowish red, the reddish yellow mesonotum polished dorsally with tomentum limited to the narrow lateral margins and posterior, the brown wing entirely covered with dense microtrichia. In addition, the combined characters of the genitalia easily separate it from its nearest relative.

Specimens examined. Lectotype ♂, paralectotype ♀, 1 ♀, Naples, Florida (MCZ).

Leptogaster obscuripes Loew

Leptogaster obscuripes Loew, 1862, 6: 191, type locality Cuba; (sex?) MCZ; Aldrich, 1905: 254 (catalog); Kertesz, 1909: 55 (catalog); Bromley 1929: 273 (redescription); Martin 1957a: 366 (diagnosis), 1968: 2 (catalog); Hull 1962: 299 (catalog).

Leptogaster ramoni Jaennecke, 1867, 6: 354, type locality Cuba; Martin 1957a: 366 (synonymy), 1968: 3 (catalog); Hull 1963: 299 (catalog).

Remarks. The type of *L. obscuripes* is in poor condition with the absence of the hind legs and the abdomen. It is a dark species with brown antenna, mesonotum dorsally devoid of tomentum, shiny, mostly black with the wide apical corners reddish, tomentum limited to the posterior fourth and narrow lateral margins of the mesonotum; mesopleuron entirely blackish; femora and tibiae largely brown anteriorly; and wings hyaline with microtrichia limited to the narrow apex.

I examined the cotypes of *L. obscuripennis* and the lectotype of *obscuripes* plus a second specimen of *L. obscuripes* from Cuba (label with 128/258, green label with Cuba, Gunh.). The two latter specimens are identical including the absence of the posterior pair of legs and abdomen. *Lepto-*

gaster obscuripes is easily recognized by its dark body, *i.e.* the brown antenna, the blackish mesopleuron, the mesonotum is largely black with only the wide apical corners red, and the femora are largely brown anteriorly. In contrast, *L. obscuripennis* is much lighter, being reddish yellow, and without the dark structures mentioned for *L. obscuripes*. Additionally, the hyaline wings of *L. obscuripes* with microtrichia limited to the anterior margin of the wing easily separate the two species.

Bromley (1929) redescribed *L. obscuripes* based upon new material from Cuba. In his redescription, he noted two thin lines of tomentum on the mesonotum which are present on both *L. jamaciensis* and *L. bahamiensis* but are absent, clearly not rubbed off the lectotype of *L. obscuripes*. I have examined two females from Cuba that were identified as *L. obscuripes* by Bromley. Also, Farr (1963) obtained a male from Cuba identified by Bromley and illustrated its epandrium. The illustration is essentially identical to that of *L. bahamiensis*, n. sp. The much lighter thorax of these specimens, presence of the two, thin, tomentose lines on the dorsum of the mesonotum, and an identical epandrium suggests that Bromley described another species, not *L. obscuripes,* but possibly *bahamiensis,* n. sp.

Specimens examined. **CUBA:** type, 1 additional specimen, (MCZ); USA: 1 ♀, Florida, Key Largo, 26 March, 1954, K. V. Krombien (USNM).

Leptogaster roederi Williston

Fig. 23

Leptogaster roederi Williston 1896: 304. Type-locality: West Indies, St. Vincent (WI), ♂ & ♀, BMNH; Martin 1968, 35a: 4 (catalog).

A female in the BMNH is in poor condition, the apical two segments of the antenna, most of the vestiture of the head and thorax, proboscis, fore legs except fore femur, right hind leg, and halter are absent. The abdomen is broken and glued to the specimen pin. The following labels are attached to the specimen pin: 1) circular label with yellow borders and the word cotype; 2) location label with "wind ward side", St. Vincent, WI, H.H. Smith; 3) date-location label with "West Indies", 1907-66; 4) a syntype label with "*Leptogaster roederi* Williston", det. J.E. Chainey, 1982; and a folded identification label with two red rectangle lines around the hand written (ink) name "*Leptogaster roederi* Will." Williston (1896) based the original description on a male and female. However, Martin (1968) only listed a female type in this catalogue of the Neotropical species of *Leptogastridae.* Unfortunately, a thorough search for the male has been unsuccessful, and the specimen is presumed lost (pers. comm. F. C. Thompson, USDA, Washington D.C.). The female in the BMNH is here designated Lectotype.

Redescription. female. Mostly yellow with head entirely and thorax partly dark brown to black, abdominal tergites 1-5 mostly reddish brown tomentose with wide apical corners yellow.

Length, body 8.9 mm; wing 6.9 mm. Face yellow tomentose with four bristly yellow setae. Front yellow to brownish yellow tomentose, front slightly divergent dorsally, width at ocellar tubercle three times as wide as face at narrowest point. Palpus yellow with sparse brown setae. Scape and pedicel brownish yellow with mostly brown setae. Occiput yellowish tomentose with yellowish vestiture, postocular setae plus several setae on dorsal half of occiput bristly.

Thorax yellow to black; mesonotum mostly shiny or polished brownish yellow, posterior half laterally blackish, broad anterior corners yellowish, laterally and posteriorly with brownish yellow tomentum; two lateral bristles and sparse brown setae present laterally and medially. Scutellum brownish yellow with yellowish tomentum and sparse brownish and yellow setae; four-six marginal setae (sockets); postscutellum blackish. Mesopleuron largely dark as a wide, oblique stripe with yellow-brown tomentum, anteriorly and posteriorly yellow to yellowish brown with yellowish tomentum. Halter yellow.

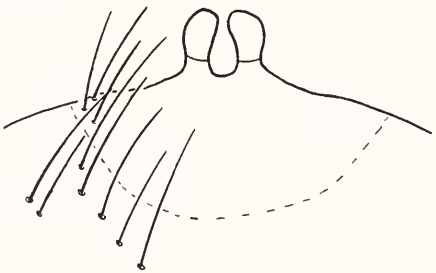
Wing with violaceous reflections. Microtrichia sparse, apical fourth of wing with dense microtrichia. Vein M_2 2.5 times as long as m-m; CuA_1+M_3 4.7 times as long as r-m; r-m crossvein well before the middle distance between base of cell d and fork of M_1+M_2. Legs slender; coxa and trochanter yellow. Femora and tibiae shiny brown-yellow, femora with a narrow, preapical yellowish band. Hind femur with apical half gradually swollen, apical third widest anteriorly. Mid tibia with a wide yellow apex, hind tibia only narrowly yellow; apex of hind tibia 2.3 times as wide as base, and subequal to greatest anterior width of hind femur; apical fourth of hind tibia anteriorly with one brown bristle. Tarsi mostly yellow to brownish yellow with brown slightly increasing sequentially from second tarsomere to fifth and from base to apex of each tarsomere; apical tarsomere entirely dark brown; hind tarsus brownish yellow to brown; bristles, claw and empodium brown to dark brown; empodium of mid and hind tarsi one half as long as and two-thirds as long as claw, respectively.

Abdomen largely reddish brown tomentose, basal 5-6 tergites with wide apical corners yellow, segments 7-8 brown; sternites 3-6 with large median brown spot, apically and basally yellow; sternites 3-7 apically with 2-6 long, bristly yellow setae. Medioapical margin of sternite 8 produced forward as a narrow bilobed, yellow process, each branch digitate, separated medially by a deep sinus; laterally, sternite 8 with numerous bristly setae.

Male. Unknown.

Specimens examined. Lectotype ♀ (BMNH).

Remarks. *Leptogaster roederi* is recognized by its small size, the presence of several yellow, bristly occipital setae, the wide, dark, oblique stripe



23.

23. *Leptogaster roederi* Williston, ♀. Sternite 8. Scale, 0.3 mm.

of the mesopleuron which is bordered anteriorly and posteriorly by yellow, wide yellow apical corners of tergites 1-5, the long, bristly setae of sternites 3-7, the narrow, yellow, preapical band of the femur only about half as wide as in other species, the presence of only one, strong, brown bristle on the apical fourth of the hind tibia, and the narrow, bilobed, digitate process of the medioapical margin of sternite 8. *Leptogaster roederi* is similar to *L. jamaciensis* and *L. bahamiensis* but differs in the lighter color of the body and legs, the much smaller body, only four bristly setae on the face, and the wide, dark, oblique stripe on the mesopleuron. It differs further from *L. martini* and other Caribbean species in the absence of the narrow stripes of tomentum on the dorsum of the mesonotum, the strong, anterior, brown bristle on the apical; fourth of the hind tibia, and the gradual increase in brown from base to apex in the apical tarsomeres. The apical and basal halves of the apical tarsomeres of most known Caribbean species are contrastingly dark and light, respectively.

ACKNOWLEDGMENTS

My sincere thanks to Mike Ivie of Department of Entomology, Montana State University, C. Young and John Davidson of the Carnegie Museum of Natural History, Pittsburgh; and F. Christian Thompson, Systematic Entomology Laboratory, USDA, at the National Museum in Washington, D. C. for bringing these flies to my attention. Appreciation is also expressed to Stefan Cover of the Museum of Comparative Zoology, Cambridge, MA, USA, for the loan of the types of *obscuripes* Loew and *obscuripennis* Johnson, and to J. Chainey of the British Museum of Natural History (BMNH), London for *Leptogaster roederi* Williston. William Grogan of the Department of Biology, Salisbury, Md., C. Riley Nelson, Department of Zoology, University of Texas, and F. Christian Thompson, ARS, USDA, USNM, Washington, D. C., read the manuscript and made valuable suggestions for its improvement. F. Christian Thompson also provided valuable information concerning the male type of *L. roederi*.

LITERATURE CITED

Aldrich, J.M. 1905. A catalogue of North American Diptera. Smithsn. Inst., Smithsn. Misc. Collect. 46 (2): 1-680.

Back, E. A. 1909. The robber-flies of North America, north of Mexico belonging to the subfamilies Leptogastrinae and Dasypoginae. Trans. Amer. EntomoL. Soc. 335: 137-400, 12 pls .

Bromley, S. W. 1929. The Asilidae from Cuba. Ann. EntomoL. Soc. Amer. 22: 237-274, 1 pl.

Curran, C. H. 1953. The Asilidae and Mydidae of the Bimini Islands, Bahamas, British West Indies (Diptera). Amer. Mus. Novitates 1644, 6 pp.

Farr, T. H. 1963. The robber-flies of Jamacia (Diptera, Asilidae), Part I. The subfamily Leptogastrinae. Bull. Inst. Jamacia, Sci. Series 13, pp. 3-22.

Hull, F. M. 1962. Robber flies of the World. The genera of the family Asilidae. Smith. Inst., U. S. National Museum. Bull. 224(1): 1-430.

Jaennecke, J. F. 1867. Neue exotische Dipteren. Abhandl. Senckenbergischen Naturf. Gesell. 6: 311-408, pls. 43-44.

Johnson, C.W. 1895. Diptera of Florida. Proc. Acad. Nat. Sci. Phil., 1895: 303-340.

Kertesz, K. 1909. Catalogus Dipterorum hucusque descriptorum. IV. Oncodidae, Nemestrinidae, Mydaidae, Asilidae. Budapest, pp. 1-348. (Asilidae pp. 49-313.)

Loew, H. 1862. Diptera Americae septentrionalis indigena. 21 Centuria Secunda. Berlin Ent. Zeitschr. 6: 185-232.

Martin, C. W. 1957a. A revision of the Leptogastrinae of the United States (Diptera:Asilidae). Bull. Amer. Mus. Nat. Hist. 111: 343-385.

Martin, C. H. 1957b. The Asilidae of the Bahama Islands with the description of two new species. Amer. Nus. Novitates 1847, 7pp.

Martin, C. H. 1968. A catalogue of the Diptera of the Americas south of the United States. Family Leptogastridae. Departamento de Zoologia, Secretaria da Agricultura, Sao Paulo. 35a:1-11.

McAlpine, J. F. 1981. Morphology and terminalia-adults, pp 9-64. *In* Manual of Nearctic Diptera. Coords. McAlpine, J. F., B. V. Peterson, G. E. Shewell, H. J. Teskey, J. R. Vockeroth, D. M. Wood. Biosystematics Research Inst. Ottawa, Ontario. Research Branch, Agriculture Canada. Monograph No. 27, Vol 1, pp. 674.

Melin, D. 1923. Contributions to the knowledge of the biology, metamorphosis, and distribution of the Swedish asilids in relation to the whole family of asilids. Zoologiska Bidrag, Uppsala. 317 pp.

Scarbrough, A. G. & G. Sipes 1973. The Biology of *Leptogaster flavipes* Loew (Diptera: Asilidae). Proc. EntomoL. Soc. Wash. 75: 380-389.

Williston, S.W. 1896. On the Diptera of St. Vincent (West Indies). Trans. Ent. Soc. London. 1896: 253-308, 346-446, pls 8-14. (Asilidae, pp. 304-308, pls. 10-11, figs. 79-80.)

1996 CALVERT AWARD PRESENTED TO ANDREW SHORT

At the April 24 membership meeting, Andrew E. Short of Glasgow, Delaware, became the tenth recipient of the American Entomological Society's Calvert Award. The award recognizes a young person in the greater Delaware Valley who has demonstrated outstanding accomplishments in insect-related study. The Award is named in honor of Dr. Philip P. Calvert [See ENT. NEWS 95(4): 155-162 (1984)] who joined the Society as a teenager, later became its president, and was a member for 74 years. As a professor of biology at the University of Pennsylvania and as associate of the Academy of Natural Sciences of Philadelphia, Dr. Calvert played an importaut role in stimulating an interest in insects among young people.

Among Andrew's many activities and accomplishments that led to the Calvert Award, the selection committee highlighted his volunteer activities. Through the Delaware Academy of Science, he developed and taught the week long junior entomologists camp at the Iron Hill Museum in 1994 and 1995 – a course that he will teach again this summer. He presented units on insects and butterflies to several classes at Marshall Elementary School in 1994 and 1995 and has taught several entomology workshops for the 4-H. Last year he participated in the first systematic macro invertebrate study of the White Clay Creek coordinated by the Ashland Nature Center (DE) and the Stroud Water Research Center in Avondale, Pennsylvania. This involved collecting and identifying all the insects in samples taken at several locations along the creek. Among Andrew's plans for this year are to restore the 60 year old insect collection at Lums Pond State Park (DE) and construct a new stream environment as part of the Mesocosm at Glasgow High School where he is in the tenth grade. Perhaps it is not surprising that Andrew placed first in the entomology competition at the Delaware State Science Olympiad in 1993, 1994, and 1995. He lamented that the category was not included in this year's Olympiad. When asked which group of insects most interests him, Andrew declared a fondness for beetles, a collection of which he displayed at the award ceremony. He also called attention to the coincidence that his initials, A. E. S., match those of the Society!

As the winner of the Calvert Award, Mr. Short received memberships in the American Entomological Society and the Young Entomologists' Society as well as a $50 check. Joseph Sheldon, president of the Society, made the presentation at the membership meeting of the Society at the Academy of Natural Sciences in Philadelphia.

Harold B. White,
Chair, AES Education Committee